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(54) **Apparatus for preventing development of atrial fibrillation**

(57) An implanted pacemaker senses intrinsic atrial events and generates corresponding pacing pulses. The atrial events are also monitored for a precursor of an atrial fibrillation episode. If such a precursor is detected, the pacemaker generates therapy designed to prevent the atrial fibrillation episode. For example, the atrium and/or the ventricle may be overdriven at a pacing rate above the intrinsic rate.

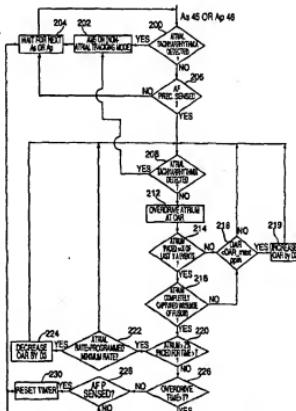


FIG. 6



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## PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention EP 98 30 6453  
shall be considered, for the purposes of subsequent  
proceedings, as the European search report

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 547 734 A (TELELECTRONICS NV) 23 June 1993 (1993-06-23)  * abstract * * column 2, line 3 - line 12 * * column 3, line 20 - line 32 * * column 7, line 18 - line 56 * * column 19, line 11 - line 49 * ---	1,6,7, 14,15, 33,34, 37,40-42	A61N1/39 A61N1/368
X	US 5 507 784 A (HILL MICHAEL R S ET AL) 16 April 1996 (1996-04-16) * column 2, line 11 - line 67 * * column 4, line 6 - line 26 * * column 7, line 30 - column 8, line 47 * * column 11, line 12 - line 28 * * claims * ---	1,6,7, 33,34,40	
A	---	9,10,36 -/-	
TECHNICAL FIELDS SEARCHED (Int.Cl.6)			
A61N			
INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or one or more of its claims, does not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.</p> <p>Claims searched completely : 1-20, 33-42</p> <p>Claims searched incompletely : Claims not searched : 21-32</p> <p>Reason for the limitation of the search: Article 52 (4) EPC - Method for treatment of the human or animal body by therapy</p>			
Place of search	Date of completion of the search	Examiner	
THE HAGUE	13 December 1999	Ferrigno, A	
CATEGORY OF cited DOCUMENTS		T : theory or principle underlying the invention E : earlier embodiment, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : technological background O : non-written disclosure P : intermediate document	
		* : member of the same patent family, corresponding document	

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## PARTIAL EUROPEAN SEARCH REPORT

Application Number  
EP 98 30 6453

Category	Citation of document with indication, where appropriate, of relevant passages.	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.)
			TECHNICAL FIELDS SEARCHED (Int.Cl.)
P,X	WO 97 40886 A (MEDTRONIC INC) 6 November 1997 (1997-11-06) * abstract * * page 7, line 15 - page 9, line 8 * * page 11, line 4 - line 16 * * claims 1,14 * ---	1	
A	YU W -C ET AL: "IS BIATRIAL PACING THE BEST MODE IN PREVENTION OF ATRIAL FIBRILLATION?" PACE - PACING AND CLINICAL ELECTROPHYSIOLOGY,US,FUTURA PUBLISHING COMPANY, INC, vol. 21, no. 4, PART 02, page 863 XP000778614 ISSN: 0147-8389 ---	2,3,8,35	
A	EP 0 161 140 A (MEDTRONIC INC) 13 November 1985 (1985-11-13) * the whole document *	1-3	
A	WO 97 13550 A (ZABARA JACOB) 17 April 1997 (1997-04-17) * page 1, line 13 - line 16 * * page 10, line 21 - line 30 * * page 11, line 9 - page 12, line 12 * ---	1	
A	US 5 403 356 A (HILL MICHAEL ET AL) 4 April 1995 (1995-04-04) * abstract * * column 1, line 63 - column 2, line 40 * ---	1	

ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.

EP 98 30 6453

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

13-12-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0547734 A	23-06-1993	US 5203326 A DE 69225119 D DE 69225119 T	20-04-1993 20-05-1998 17-09-1998
US 5507784 A	16-04-1996	US 5411531 A	02-05-1995
WO 9740886 A	06-11-1997	US 5683429 A AU 1971797 A EP 0959947 A	04-11-1997 19-11-1997 01-12-1999
EP 0161140 A	13-11-1985	US 4577633 A AU 570603 B AU 3962885 A JP 1743962 C JP 4034417 B JP 60225578 A	25-03-1986 17-03-1988 03-10-1985 15-03-1993 05-06-1992 09-11-1985
WO 9713550 A	17-04-1997	US 5700282 A AU 7262196 A EP 0854742 A	23-12-1997 30-04-1997 29-07-1998
US 5403356 A	04-04-1995	NONE	

For more details about this annex: see Official Journal of the European Patent Office, No. 12/82